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ANALYSIS OF CLEAN WATER ACHIEVEMENTS IN THE NORTH of SURABAYA City ACCORDING TO SDGs

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ABSTRACT

National Medium-Term Development Plan (RPJMN) targets 100% of the clean water access and sanitation for all Indonesian people, the program is valid for 2015-2019. Research was conducted to measure the RPJMN target achievement . The analysis was taken in North Surabaya city: Bulak and Krembangan Subdistricts, research methods used is by EHRA and the output used qualitative from Microsoft Excel with result reaching 100%. Societies obtained water sources from: bottled water, refilled water, and regional water supply (PDAM). PDAM water is used for dishwashing and brushing teeth, societies consider the water is not feasable. The difficulty level in obtaining clean water is 20.2% due to technical problems. Satisfaction level of PDAM water quality is 82%, while the remaining 18% are not. Occured problems: murky water after pipeline repairs, water clarity, larvae in a reservoir, and others. Societies reproccess the PDAM supply for consumption reaches 93%, it cannot be used directly.

Keywords: clean water achievement, SDGs achievement , regional water supply

INTRODUCTION

Water is a basic need for humans, but in reality there are still a lot of people that have not got clean water supply yet. Even now, access to clean water in Indonesia is still unevenly supplied (Made & Saleh, 2016) [11]. The 2015-2019 National Medium-Term Development Plan (RPJMN), targets 100% of the access of clean water and sanitation for all people in Indonesia.

People's well-being can be improved by improving environmental health to maintain ecological balance. Environmental health problems can occur due to clean water sources (Utami & Handayani, 2018) [14]. The main problem that makes the quantity of water unable to be fulfilled is because of industrial waste, domestic and other activities, this is what makes the water quality can never be better and also be dangerous for living things that depend on water (Effendi, 2003) [4].

The Sustainable Development Goals (SDGs) are the 17 objectives of the updated program planned by the Millennium Development Goals (MDGs) which are considered unable to reach the goal until the end of 2015 (Wahyuningsih,

2017) [16]. The SDGs are the latest program plan agreed upon by the United Nations (UN) General Session, which has a new universal development goal starting in 2016 until 2030.

The purpose of this study is to find out the development of regional water supply (PDAM) in Surabaya, with how much the area is flowing with clean water in percentage to be able to measure the success of the RPJMN program which targets in 2019 Surabaya city reaches 100% access to clean water SDGs.

RESEARCH METHODOLOGY

2.1 Study of Literature and Study Field

This research requires a method with steps and strategies to acquire an accurate final results. The results of data from the Surabaya City Central Statistics Agency (BPS) can be seen as in Table 1. and Table 2.:

Table 1. Sub-distric population Bulak

Sub-distric	Region Area (Km^2)	Population Number (People)	Population Density (People/Km^2)
BULAK	1.53	18.291	11.955
KEDUNG COWEK	1.13	5.880	520
KENJERAN	0.93	6.571	7.066
SUKOLILO BARU	3.13	12.236	3.909
TOTAL	6.72	42.978	6.396

Source: BPS Surabaya City 2017

Table 2. Sub-distric population Krembangan

Sub-distric	Region Area (Km^2)	Population Number (People)	Population Density (People/Km^2)
DUPAK	0.48	28.151	58.648
MOROKREMBANGAN	3.17	47.227	14.898
PERAK BARAT	1.61	19.671	12.218
KEMAYORAN	0.51	20.555	40.304
KREMBANGAN SELATAN	0.84	11.960	14.238
TOTAL	6.61	127.564	140.306

Source: BPS Surabaya City 2017

This research requires the use of Slovin method to determine the amount of respondent samples needed with the following method:

$$n = \frac{N}{1+Ne^2} \quad (1)$$

Info :

n = number of samples needed.

N = total number of population
e = sampling's error allowed.

So that the calculation becomes as follows,

$$n = \frac{42978 + 127564}{1+(170542*0{,}05)^2} \quad (2)$$

$$= 399{,}06 \text{ Mount of samples}$$

This research was conducted in Bulak and Krembangan Districts with a total of 400 respondents. Bulak District consists of 132 households (RT) and Krembangan District consisting of 381 RTs with the data obtained from the Central Statistics Agency, 2018. Each sub-district consists of 5 sub-districts and 8 RTs will be taken in each sub-district. Each respondent will be taken randomly every 1 RT with the distance of each house far apart in order to fulfill the EHRA requirements.

Calculations are performed according to Minister of Public Works Regulation No. 1 of 2014 concerning minimum service standards (SPM) with the following formula:

$$\text{SPM} = \frac{\Sigma \, public \, served}{\Sigma \, total \, public} x100\% \quad (3)$$

2.2 Proccesing data

Conducted field reports used the EHRA questionnaire for field surveys and EHRA software for data input. Data that has been input into EHRA software will be processed in Microsoft Excel to find out the processing of data from the results of the surveys that have been conducted.

2.3 Data correlation analysis

From processing the data that has been obtained, it is processed and discussed to get a picture that is in accordance with the actual field conditions at this time. The processed data that is wanted is to know how much access to clean water has been made by the Regional Government in order to meet the RPJMN targets that have been made, and to compare the results with previous researchers.

RESULT AND DISCUSSION

3.1 Survey data result

2.3.1 Customer water source

Water sources needed by respondents for drinking dominantly use refill water and bottled water. Cooking activities use mostly reprocessed tap water. Dish and glass washing activities and brushing teeth almost entirely using tap water. Data can be seen in Figure 1.

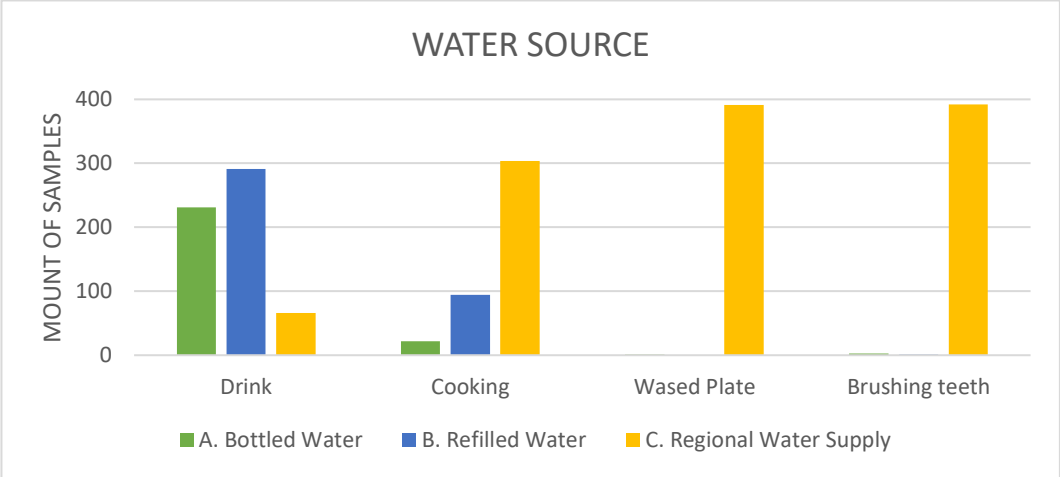

Figure 1. Graphic Bar-Chart Water source

2.3.2 Level of difficulties to access water

The difficulty level of respondents to get water results with 79.8% never having difficulty getting water, and 20.2% of other respondents that still have difficulty getting water with various difficulties obtained. Data can be seen in Figure 2.

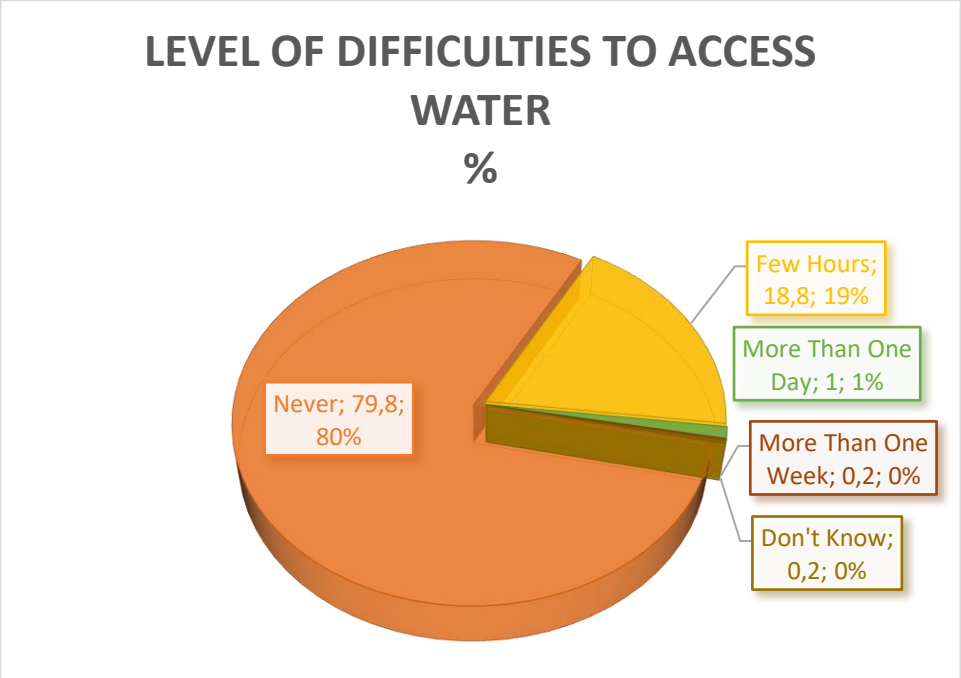

Figure 2. Pie-Chart Level of difficulties to access water

2.3.3 Costumer statisfaction

The level of customer satisfaction has reached 82%, and remaining 18% of customers dissatisfaction occur due to various factors from the level of PDAM

water quality obtained by customers, difficulties in obtaining clean water, and others. Data can be seen in Figure 3.

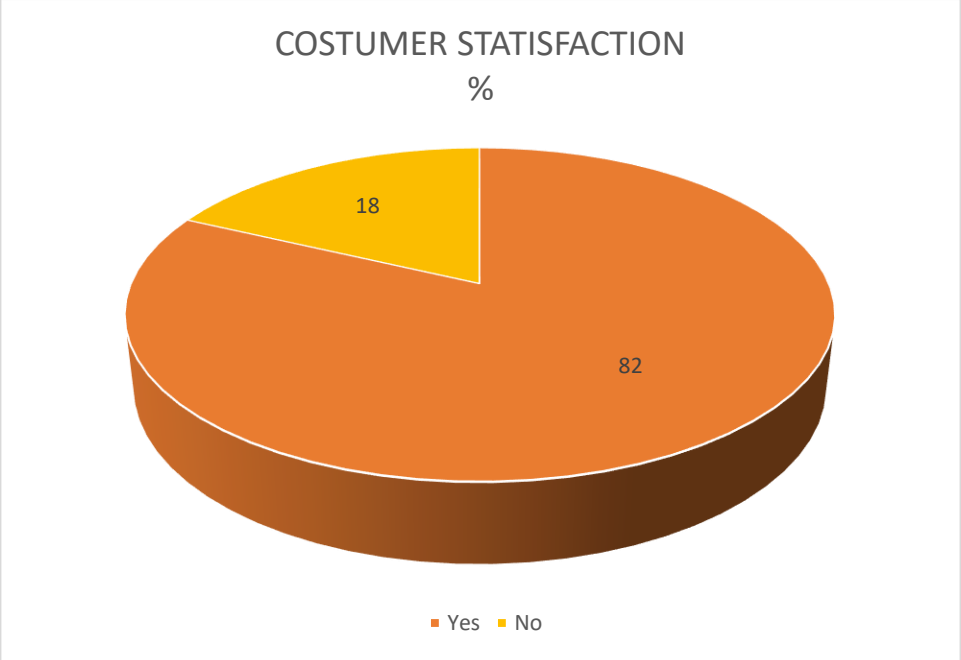

Figure 3. Pie-Chart Costumer statisfaction

2.3.4 Reprocessing water before consuming

Reprocessing the water before consuming reaches 50.2% because the respondent reprocesses it to ensure the water does not have bacteria or germs that are still contained in the water that will be used. Customers who did not do the reprocessing were 49.8%, because the respondents had used refill water and bottled bottled water which they felt did not contain bacteria or germs. Data can be seen in Figure 4.

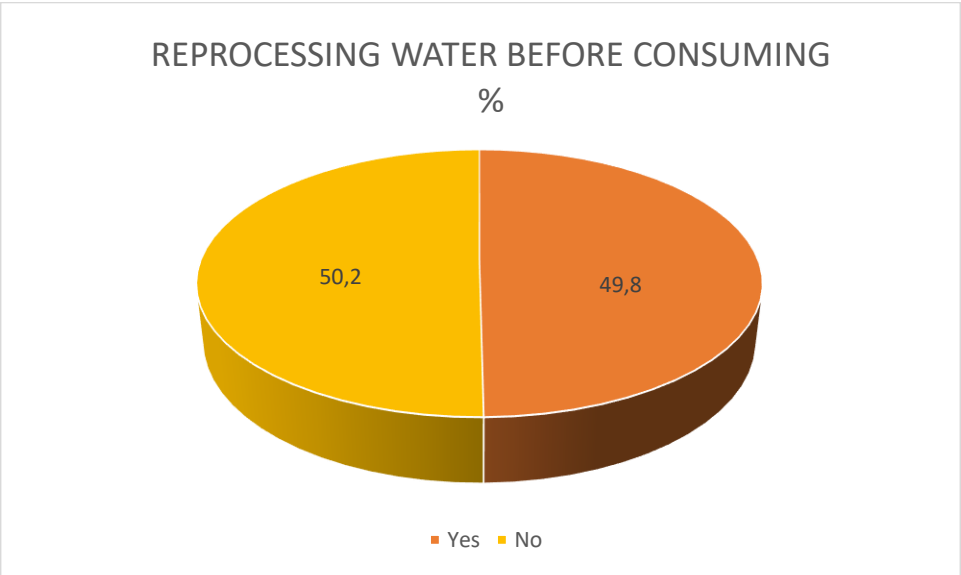

Figure 4. Pie-Chart Reprocessing water before consuming

2.3.5 Method to processing water for consumption

The method of processing water for consumption by 93% of respondents is by reboiling , and 7% of them is by using filter and adding chemicals. Data can be seen in Figure 5.

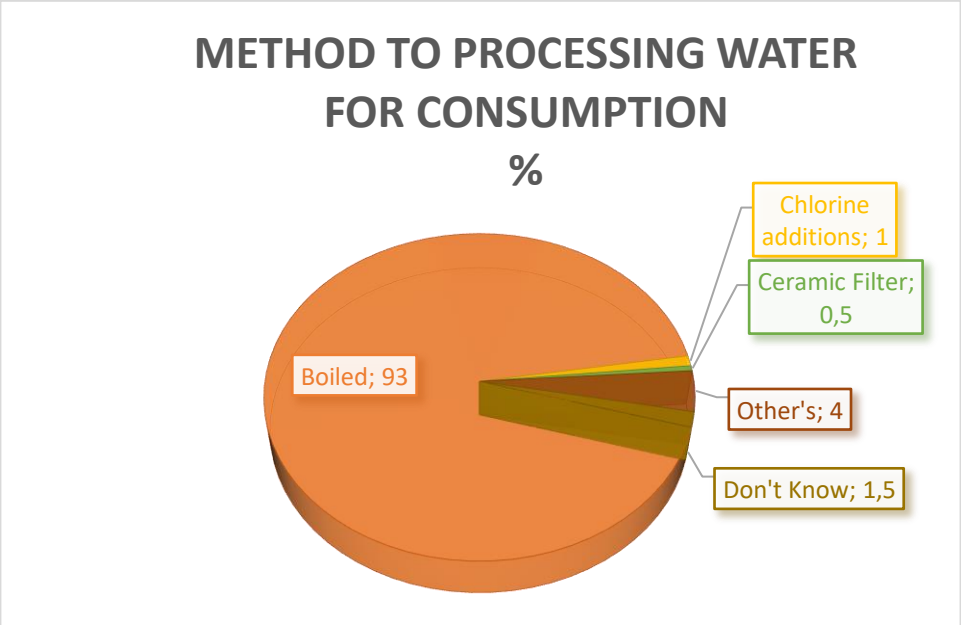

Figure 5. Pie-Chart Method to precessing water for consumption

CLOSING

2.4 Conclusion

2.4.1 Achievement target of RPJMN

a. The SPM that has been achieved in the Districts of Bulak and Krembangan District reaches 100%.
b. For the Sub-District of Bulak and the Sub-District of Krembangan have already been water channeled by PDAM.

2.4.2 Factor obstacle to access clean water

a. The economy of the District of Bulak is more middle and lower-mid. The economy of the Krembangan sub-district is more medium and some with lower economy. Economic factors are one of the purchasing power factors to get clean water channels.
b. Societies education that lacks a systematic system for subscribing to clean water access from PDAMs is considered to make it difficult for people to get access to clean water.

2.4.3 Strategy for fulfill target of RPJMN

a. Prioritizing the budget plan for clean water piping from the PDAM to the socities' house.
b. Conduct counseling to the surrounding societies about the importance of clean water for public health.

2.5 Suggestiom

a. Conduct surveys with housewives, because they are more aware and understand the questions contained in the EHRA questionnaire.
b. Conduct surveys throughout sub-districts in the North Surabaya area, to achieve more accuracy in the North Surabaya sector.
c. The PDAM needs to give an announcement at least to RT / RW that there will be improvements to the PDAM channel network in the area.
d. PDAM is to make improvements in the water quality that is distributed in the societies, because the water distributed is not suitable for consumption as larvae easily breed in and moss grow within the pipelines and tubs.

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